
NOTES

Clinical characteristics of nosocomial infections of patients with acute central nervous system infections treated in ICU

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ABSTRACT

A retrospective study was performed to evaluate the clinical characteristics of nosocomial infections in patients with acute infection of central nervous system (ACNS infections).

The study included 1,686 patients admitted to the ICU. Of 1,686 patients, 936 (55.5%) had ACNS infection. Nosocomial infections was confirmed in 221 (23.6%) patients with ACNS infection. The most common risk factors for ICU-acquired nosocomial infections were consciousness disorder, mechanical ventilation and nasogastric tube. The coagulase – negative *Staphylococcus aureus* was the most frequent isolated pathogen (285 isolates, 56.5%).

Results suggest that a persistently high level of therapeutic activity and persistently depressed consciousness after the ICU admission are associated with the occurrence of hospital-acquired infection in critically ill patients hospitalized at a medical ICU.

Key words: hospital-acquired infections (HAI), intensive care unit (ICU), acute cerebral infections

INTRODUCTION

A nosocomial infection is determined as an infection occurring in patients in hospitals or other health care facilities who did not have the infection at the time of admission (1). Furthermore, this entity includes infections acquired in the hospital, but appearing after discharge and also occupational infections among the staff of the facility (2).

Many factors add to the infection among hospitalized patients: a patient's characteristics, nature of the basic disease, various invasive diagnostic and therapeutic procedures, type of hospital institution, characteristics of microorganisms that cause an infection and antimicrobial therapy (3). Patients suffering from severe acute bacterial or viral infections of central nervous system (ACNS) in intensive care units (ICUs) are at increased risk due to severe consciousness disorders, difficult or impossible breathing, which requires endotracheal intubation or tracheotomy and very often assisted ventilation (4,5).

In this study, we attempted to describe clinical and epidemiological characteristics of nosocomial infections in ICU treated patients with ACNS infections.

PATIENTS AND METHODS

A retrospective analysis of 936 hospitalized patients with ACNS infection treated in ICU of the Department of Infectious Diseases of the Clinical Center of Kragujevac, Serbia, was performed. The study covered the period between January 1 2007 and December 31, 2008, during which time a total of 1,686 patients were treated in this unit.

The patients with ACNS infection who developed pneumonia, urinary tract infection (UTI), primary bacteremia, central venous catheter-related blood stream infection, thrombophlebitis and gastrointestinal tract infection in the course of the treatment were classified as cases. These patients were suspected to have developed nosocomial infections after 48 hours of admission to the ICU if they had unexplained fever > 38°C, white blood cells count of more than 10,000/mm³, new infiltrates on the X-ray chest radiograph, persistent tracheal aspirates or purulent secretions, turbid urine, suprapubic tenderness, dysuria, burning micturition, thrombophlebitis; or cloudy effluent containing more than 100 polymorphonuclear cells/mm³, abdominal pain or tenderness or microorganisms in peritoneal dialysis fluid.

Diagnosis of primary bacteremia was confirmed by at least one positive blood culture without another site simultaneously infected with the same microorganism. Routine laboratory tests included complete haemathologic and biohumoral blood analysis, X-ray chest radiograph and urine examination, blood culture were done at the time of

